IS 8712-8 (1985): Guidelines for Coordination of Dimensions in Shipbuilding, Part 8: Coordinating Sizes for Services [TED 17: Shipbuilding]

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(Reaffirmed 2005)

Indian Standard

GUIDELINES FOR COORDINATION OF DIMENSIONS IN SHIPBUILDING

PART 8 COORDINATING SIZES FOR SERVICES

Shipbuilding Sectional Committee, MCPD 1 [Ref : Doc : MCPD 1 (532)]

1. Scope — Gives recommendations for the coordinating sizes of service components and fittings used on board ship in order to integrate these items within dimensionally coordinated accommodation. The services included comprise electrical, fire and hoists, ventilation and air conditioning, and water.

1.1 This standard also makes recommendations, where possible, for the connection centres of services in order to promote interchangeability of service components.

2. Terminology — For the purpose of this standard, the terms and definitions given in IS : 8712 (Part 2)-1977 'Guidelines for coordination of dimensions in shipbuilding: Part 2 Glossary of terms' shall apply.

3. Guidelines for Selection of Coordinating Sizes

3.1 In order to achieve the coordination of dimensions, it is necessary first to reduce the number of possible sizes that are to be used, that is, a selection of sizes must be made. The method given in IS : 8712 (Part 3)-1978 'Guidelines for coordination of dimensions in shipbuilding: Part 3 Coordinating sizes for components and assemblies' is to recommend the use of particular units of size, or modules and multiples of these modules for the coordinating dimensions of components or assemblies.

3.2 Further variety reduction is obtained by standardizing the principal vertical and horizontal dimensions within the accommodation such as deck-to-ceiling height or length and width of cabins. These dimensions are termed controlling dimensions and are covered in IS : 8712 (Part 4)-1977 'Guidelines for coordination of dimensions in shipbuilding: Part 4 Controlling dimensions'.

3.3 Within the restrictions imposed by the use of the standard modules and controlling dimensions, it is necessary to select a range of the sizes for modular components which most conveniently meet the requirements found from the survey for the particular item. The selection may be made in accordance with IS : 6772-1972 'Recommendations for dimensional coordination of industrialized building— preferred increments', to establish groups of 'relatively prime numbers' to give maximum flexibility in assembly.

Note — Minimum sizes mentioned in Merchant Shipping (Crew Accommodation) Rules, 1960 as amended from time to time, applicable for different ship sizes should be noted while selecting the coordinating sizes according to this Indian Standard.

4. Coordinating Spaces for Services

4.1 The space also allocated to an individual component (including an allowance for joints and tolerances for manufacture and siting) is termed a coordinating space and the dimensions of this space are termed coordinating dimensions. The coordinating dimensions defining the spaces are for length, width, depth and height and the range of sizes allocated to these dimensions are determined within the restrictions outlined in **3**. Further reference to joints and tolerance is made in **6**.

4.2 Coordinating sizes for individual components are given in Table 1. The ranges of coordinating sizes are derived to provide mean coverage of the ranges of sizes most frequently encountered in the survey of existing furniture standards and ship outfits.

5. Component Ranges

5.1 The coordinating sizes given in Table 1 are intended as the restricted range for each component to give the most economic coverage of existing sizes and should from the nucleus of any range proposed for manufacture. All combinations of length, width, depth and height given in the table may be used.

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5.2 It should be noted that the sizes given in the component ranges are coordinating sizes; for many service components these include space for pipe connections, valves, control gear and other attachment which form an integral part of the component. They also include all clearances, tolerances and access for maintenance, operation and installation (*see* Fig. 1).

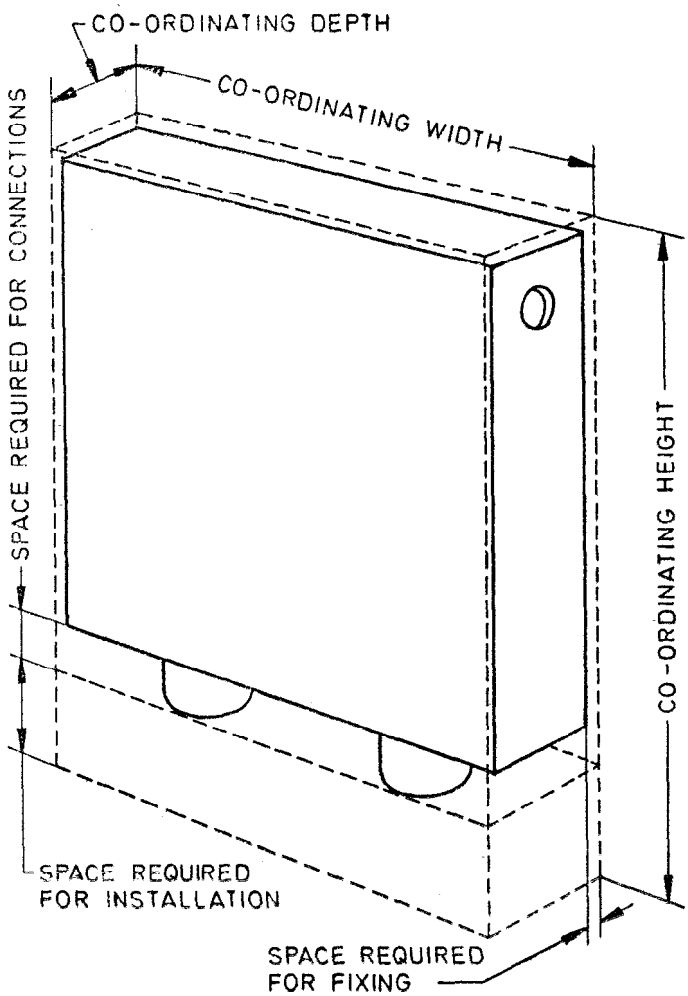

FIG. 1 COORDINATING SPACE FOR COMPONENTS

5.3 In some instances, components are directly related to the structure and therefore extend beyond the key reference planes which normally define the co-ordinating dimensions. In these cases, the component size should include an allowance for the joint between the component and the structure or relevant reference plane. Particular care should be taken in this respect with components passing through bulkheads or ceilings, such as vent trunking (*see* Fig. 2).

6. Manufacturing Sizes

6.1 For the purpose of manufacture, it is necessary to use an agreed procedure for determining work sizes for components based on the coordinating sizes contained in the recommendations and allowances for the jointing, access, tolerances, etc, outlined in **5.2** and **5.3**. Reference may be made to IS : 6408-1971 'Recommendations for modular coordination — application of tolerances in building industry'. In view of the commonality of components, it is proposed to adopt similar procedures for determining work sizes, (*see* Fig. 3).

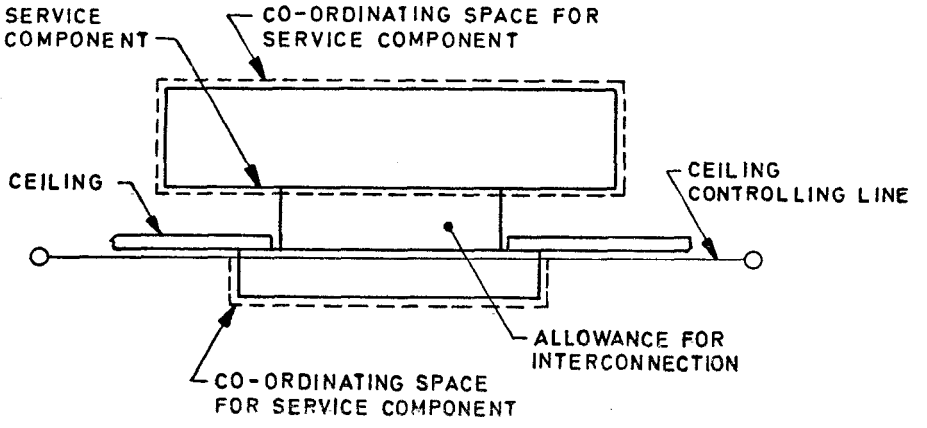

FIG. 2 INTERCONNECTION OF COMPONENTS

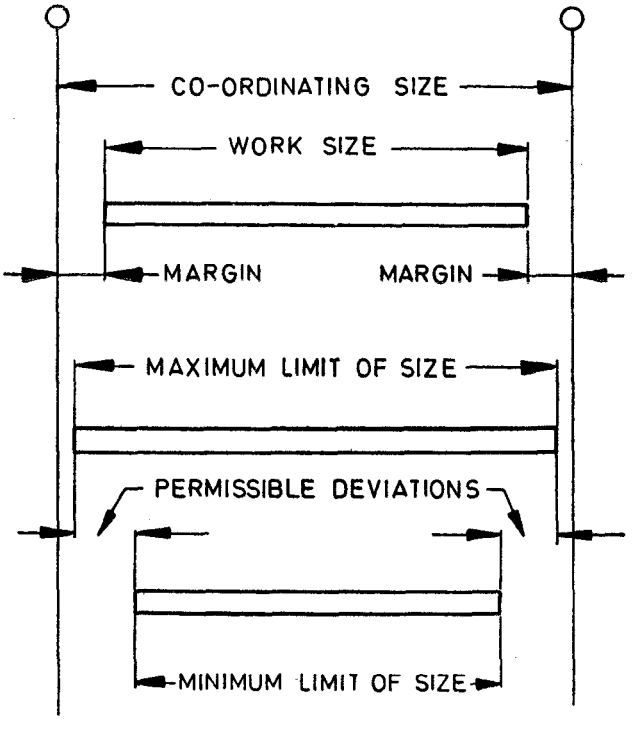

FIG. 3 DETERMINATION OF WORK SIZES

TABLE 1 COORDINATING SIZES FOR SERVICES

(*Clause* 5.1)

The following conventions are used in the table to indicate the degree of coordination intended for the component dimensions.

$n \times 50$ Any multiple of 50 mm, where n is any natural number including unity

$n \times 100$ Any multiple of 100 mm

600 Sizes given in the tables indicate the proposed range of sizes for a particular dimension

<u>600</u> Sizes which are underlined indicate the preferred sizes

. Note — All combinations of length, width and depth and height may be used.

Service	Length	Width	Depth	Height	Remarks
Electrical					
Light fittings (recessed)	$n \times 50$ 100 150 200 250 300 350 400 500 600	$n \times 50$ 100 150 200 250 300 350 400 500 600	n × 50 150 200 250 300		Tungsten fittings
	$n \times 100$ <u>600</u> <u>1 200</u> <u>1 500</u> 1 800	$n \times 50$ 200 <u>300</u> 400 450 500 600	$n \times 50$ <u>100</u> <u>150</u> 200		Fluorescent fittings
Telephones (bulkhead mounted)		$n \times 50$ 150 200 250	$n \times 50$ 100 250	$n \times 50$ 200 250 300	
Loudspeakers and call systems		$n \times 50$ 100 150 200 250	$n \times 50$ 50 100 150 200	$n \times 50$ 100 150 200 250	
Terminal fittings (including switches, sockets)		<u>100</u> <u>75</u> 80 85 90		<u>100</u> <u>75</u> 80 85 90	Preferred size Currently Available sizes
Switches and sockets				$n \times 50$ 800	Mounted position above floor level
Main light switch				<u>1250</u>	Above floor level
Terminal fittings (pattresses/boxes)		75 <u>100</u> <u>75</u> 80 85 90		75 <u>100</u> <u>75</u> 80 85 90	Recessed Surface mounted
Wiring pathways ducts and trunks		$n \times 50$ 50 100 150		$n \times 50$ 50 100 150	
Trays		75 <u>100</u> <u>150</u> <u>200</u> <u>300</u> 450 600			

(*Continued*)

TABLE 1 COORDINATING SIZES FOR SERVICES — *Contd*

Service	Length	Width	Depth	Height	Remarks
Fire					
Hose reel recesses and surface mounted boxes		$n \times 100$ 700 800 900	$n \times 100$ 300 400	$n \times 100$ 800 900	
				$n \times 100$ 1 100	Height above floor level, to bottom of recess
Hand extinguisher recesses		$n \times 100$ 300 400 500	$n \times 50$ 200 250 300		
				1 000	Height above floor level to top of recess
Smoke/fire detection cabinet		$n \times 100$ 500 600 700	$n \times 50$ 150 250 250 300 350 400 450	$n \times 100$ 500 600 700 800	
Lifts		$n \times 100$	$n \times 100$	$n \times 100$	
5 person, 400 kg		1 100 1 800 800	950 1 600 —	2 100 — 2 000	Car (internal dimensions) Trunk (clear space) Door
8 person, 630 kg		1 100 1 800 800	1 400 2 100 —	2 100 — 2 000	Car (internal dimensions) Trunk (clear space) Door
13 person, 1 000 kg		1 100 1 800 800	2100 2 600 —	2 100 — 2 000	Car (internal dimensions) Trunk (clear space) Door
Hoists		$n \times 50$	$n \times 50$	$n \times 50$	
25 kg		550 800 800	450 650 700	850 — —	Cage Trunk (front access) Trunk (front and rear access)
40 kg		600 850 850	550 750 800	900 — —	Cage Trunk (front access) Trunk (front and rear access)
63 kg		700 950 950	600 800 850	1 000 — —	Cage Trunk (front access) Trunk (front and rear access)
100 kg		750 1 000 1 000	700 900 950	1 050 — —	Cage Trunk (front access) Trunk (front and rear access)

(*Continued*)

TABLE 1 COORDINATING SIZES FOR SERVICES — *Contd*

Service	Length	Width	Depth	Height	Remarks
Ventilation and air conditioning ducts (circular)		$n \times 50$		$n \times 50$	
		100		100	75 duct
		150		150	100/125 duct
		200		200	150/175 duct
		250		250	200 duct
Note — These sizes relate to space required for passage of insulated circular ducts of nominal size given.					
Ducts (rectangular)		$n \times 50$		$n \times 50$	
		200		150	150 × 100 duct
		250			200 × 100 duct
		300			250 × 100 duct
		350			300 × 100 duct
		450			400 × 100 duct
		250		200	200 × 150 duct
		300			250 × 150 duct
		350			300 × 150 duct
		450			400 × 150 duct
		550			500 × 150 duct
		650			600 × 150 duct
		250		250	200 × 200 duct
		300			250 × 200 duct
		350			300 × 200 duct
		450			400 × 200 duct
		550			500 × 200 duct
		650			600 × 200 duct
Note — These sizes relate to space required for passage of insulated rectangular ducts of sizes given.					
Grills (exhaust)	$n \times 50$			75	
	100			100	
	150				
	200				
	300				
	400				
	500				
Grills (supply)	$n \times 100$	$n \times 100$			
	300	300			
	400	400			
	500	500			
	600	600			
Terminal fittings:					
Cabin units (including punkah louvres)		$n \times 50$	$n \times 50$	$n \times 50$	
Deck mounted (*see* Fig. 1)		300	100	400	
		350	150	500	
		400	200	600	
		450		700	
		500			
		550			
		600			
		650			
		700			
				150	Height above deck
				200	
Mounted under ceiling	$n \times 50$	$n \times 50$		$n \times 50$	
	400	350		100	
	450	400		150	
	500	450		200	
	600	500			
	700	550			
		600			

(*Continued*)

TABLE 1 COORDINATING SIZES FOR SERVICES — *Contd*

Service	Length	Width	Depth	Height	Remarks
Recessed ceiling units (*see* Fig. 2)	$n \times 50$ 400 450 650 750 850	$n \times 50$ 350 400 450 500 550 600	$n \times 50$ 150 200		Sizes relate to boxes or parts of units behind the ceiling
	$n \times 50$ 150 200 250 300 350 400 500 600	$n \times 50$ 150 200 250 300 350 400 500 600	$n \times 50$ 50 100		Sizes relate to part of unit below ceiling
Water Services					
Terminal connections (supply)		$n \times 50$ 150 200 250 300 350 400 450 500			Sizes relate to centre-to-centre dimensions of connections for washbasins baths, bidets, sinks, showers, etc
Vertical pipe ducts (supply and drainage)		$n \times 50$ 600 750	$n \times 50$ 150 200		Sizes relate to the cross-section of space required for passage of pipes

EXPLANATORY NOTE

This standard is one of a series of Indian Standards on dimensional coordination in shipbuilding. Other standards in the series are:

IS : 8712 Guidelines for coordination of dimensions in shipbuilding:

Part 1 Principles of dimensional coordination

Part 2 Glossary of terms

Part 3 Coordinating sizes for components and assemblies

Part 4 Controlling dimensions

Part 5 Coordinating spaces for internal sub-division

Part 6 Coordinating spaces for furniture

Part 7 Coordinating sizes for fixture, fittings and equipment

In the preparation of this standard, considerable assistance has been derived from BSMA 77-1976 'The coordination of dimensions in shipbuilding: Coordinating sizes for services', issued by British Standard Institution.

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